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(54) Title: METHODS FOR MAKING AND USING MOLECULAR SWITCHES INVOLVING CIRCULAR PERMUTATION

(57) **Abstract:** The invention provides molecular switches which couple external signals to functionality, and combinatorial methods of making and using the same involving circular permutation of nucleic acid and amino acid sequences. The switches according to the invention can be used, for example, to regulate gene transcription, target drug delivery to specific cells, transport drugs intracellularly, control drug release, provide conditionally active proteins, perform metabolic engineering, and modulate cell signalling pathways. Libraries comprising the switches, expression vectors and host cells for expressing the switches are also provided.